DEFINITELY USEFUL COMMANDS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Command** | **Min** | **Max** | **Code** | **Short Desc** |
| Absolute Move | -∞ | +∞ | G | Go to position x microsteps from position at power start or most recent reset. |
| Relative Move | -∞ | +∞ | S | Go to position x microstops from current position. |
| Free Spin | - | + | S | Special case of relative move: sending “+s” causes motor to turn “forward” and sending “-s” causes the motor to turn “backwards”. This continues indefinitely. |
| Motor Speed | 1 | 62,500 | R | Set target motor speed in microsteps/sec. See the “!” character for definition of microstep size. Default is 800. |
| Motor Accel. | 1 | 62,500 | P | Set maximum acceleration rate in microsteps/sec2. See “!” character for definition of microstep size. Default is 8,000. |
| Stop Motor | N/A | N/A | Z | Causes motor to decelerate to minimum safe stopping speed. Stopping speed is defined by the “K” command. Deceleration rate is equal to the negative of the acceleration rate “P”. |
| Idle Power | 0 | 2 | W | Defines how the motor is powered when not turning. Motor always gets full power when running.  0w - Motor is off when idle **(default)**  1w - Full power when idle  2w - Half power when idle |
| Notify on Stop | N/A | N/A | I | Command prompt will wait for motor to stop before responding with “\*”. Running any other command overrides this behavior. |
| System Status | 0 | -12 | ? | Reads out status info in an array format. To get just the nth item from the following list, instead send “-n?”.  [current location, current speed, current slope, target position, target speed, windings state, stop windings state, step action, step style, run rate, stop rate] |

POSSIBLY USEFUL COMMANDS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Command** | **Min** | **Max** | **Code** | **Short Desc** |
| Motor Select | N/A | N/A | X, Y or B | Select which motor future commands go to (as defined by the board). X = X motor, Y = Y motor and B = both motors. Default is B. |
| Stopping Speed | 1 | 62,500 | K | If motor slows down to this speed, then the motor will instantly stop. Note: setting this value too high could cause damage to the motor. Default is 80K. |
| Store Location | N/A | N/A | M | Alternates between “store current position” and “goto stored position”. Position is defined relative to position at power on or last reset. |
| Define Position | -∞ | +∞ | = | Define the current position as being x microsteps from a “starting” 0 position. |
| Set microstep size and reset | 1 | 64 | ! | Causes a reset of the controller board and changes the step size. **WARNING: NUMBER MUST BE A POWER OF 2!!!**  Step size becomes N/64 microsteps per position point. “1 step” as defined by both motors is 1.8°.  On power on, system effectively immediately executes a “4!” instruction. Each time this command is run, it has the same effect as running the following string of instructions (commas are added for readability purposes):  3072A, B, 0=, 0H, 80K, 3O, 8000P, 800R, 0T, 1V, 0W |

PROBABLY NOT USEFUL COMMANDS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Command** | **Min** | **Max** | **Code** | **Short Desc** |
| Check if limit was triggered | N/A | N/A | L | System has limit detectors. See official documentation for details. Not currently implemented. |
| Response Formatting | 0 | 3 | V | Special formatting options for how the board responds to commands. Default is 1V. Do not edit. |
| Full Step Threshold | 1 | 62,500 | A | If this speed is exceeded, motor switches to full step mode. Note: Only stores multiples of 256. Do not adjust unless needing very high speeds. Default is 3072. |
| Half Power Mode Enable | 0 | 1 | H | Cuts power to motor in half if enabled. Default is 0H. Do not use. |
| Step Mode | 0 | 3 | O | Modifies how control board calculates motion. Default is 3O. Do not edit. |
| Limit Switch Controls | 0 | 255 | T | Decimal to binary bit enable for limit switches. See official documentation for details. Default is 0T. Not currently implemented. |